CDS Connect

June 28, 2018 CDS Connect Work Group Call

AGENDA

Time	Item
3:00 – 3:05	**Roll Call, Ginny Meadows (MITRE)**
3:05 – 3:10	**Review of the Agenda, Ginny Meadows (MITRE)**
3:10 – 3:35	**Future Planning for CDS Connect Clinical Domains, Ginny Meadows (MITRE)** • Open Discussion
3:35 – 3:50	**Future Planning for CDS Connect Authoring Tool and Repository, Chris Moesel (MITRE)** • Open Discussion
3:50 – 3:55	**Status of Pilot, Ginny Meadows (MITRE)**
3:55 – 4:25	**Trust Framework Work Group: Promoting Trust in CDS Connect Artifacts: Draft Results, Blackford Middleton (PCOR CDS-LN)** • Share draft findings from the Trust Framework Work Group efforts • Question and answer period
4:25 – 4:30	**Open Discussion and Close Out, Maria Michaels (CDC)** • Open discussion and announcements • Concluding comments, review next steps and adjourn

PCOR CDS-LN = Patient Centered Outcomes Research Clinical Decision Support-Learning Network
CDC = Centers for Disease Control and Prevention, CDC = Clinical Decision Support

Future Planning for CDS Connect Clinical Domains

Possible CDS Clinical Domains

Options	Pros	Cons
Opioids: • Expand into more actionable CDS; • Focus on other aspects (e.g. substance use disorder; alternate recommendation)	Reflects national priority; Leverage experience and relationships	Potentially complex; Issues with data availability
Depression/Suicide Prevention	Reflects national priority; Tie-in with quality measures	Complex recommendations based on multifactorial scores; intellectual property (IP) issues
Acute Care Options: Sepsis; Falls Risk; Stroke; Other?	High impact, different use case; Tie-in with quality measures	Difficulty procuring pilot organizations, access to databases
Geriatric-related concepts: fall prevention; polypharmacy; high risk meds	Useful across numerous care settings including Long Term Care, Skilled Nursing Facility, Home Health	Issues with data availability
Diabetes, Hypertension (HTN), Immunizations	Potential to touch a large # of patients, alignment of HTN metrics	Existing CDS in electronic healthcare record (EHR) systems?
United States Preventive Services Task Force Recommendations	Promote prevention, have IP clearance	Can be challenging to specify, parallels existing work
Hepatitis B or C	Nationally prominent diseases	
Childhood Obesity	Nationally prominent problem	Behavioral interventions

Future Planning for CDS Connect Authoring Tool and Repository

CDS Repository – Recently Deployed & Currently In Progress

- **Groups**
  - Users and content associated with organizations (e.g. MITRE)
  - Allows for multi-user collaboration on artifacts

- **Artifact import API group integration**
  - Fast Healthcare Interoperability Resource (FHIR) 3.0.1 Standard Trial Use 3 (STU3) Clinical Reasoning
  - Artifacts uploaded by authors will be associated with their group

CDS Repository – Potential Fiscal Year (FY) 2019 Features

- **Expanded artifact import application programming interface (API)**
  - Native CDS Connect format
  - Support for additional popular artifact formats (e.g. Guideline Element Model)

- **Integration w/ the CDS Connect Authoring Tool**
  - Upload artifacts from authoring tool to repository

- **UI updates**
  - Refined user content views
  - Incremental improvements to user interface (UI)

CDS Repository – Potential FY2019 Process Improvements

- **Facilitate development and deployment**
  - Features developed more quickly
  - With higher confidence, fewer edge-case bugs
  - Easier long-term operation and on-going maintenance

- **Behind the scenes automation and Development and Operations (DevOps) updates**
  - Continuous integration/deployment with Jenkins
  - Automated regression testing with Selenium framework

CDS Repository – Potential FY2019 Update Recap

- Expanded artifact import API

- Integration with the CDS Connect Authoring Tool

- UI updates

- Facilitate development and deployment

- Behind the scenes automation and DevOps updates

CDS Authoring Tool – Currently In Progress

- **Re-usable elements**
  - Author arbitrary elements and reference them throughout artifact
  - Re-use parameters of any type in logic throughout the artifact

- **Compact expressions view**
  - Collapse expressions to human-readable summaries

- **User-facing testing w/ synthetic data**
  - Upload & store synthetic data (in FHIR STU2 bundle format)
  - Execute authored clinical quality language (CQL) against the stored synthetic data
  - View results (Included, Excluded, Recommendations)

- **CQL authoring for other versions of FHIR**
  - FHIR 3.0.1 (STU3)
  - FHIR 4.0.0 - Reference 4 (R4), when available

- **Integration w/ the CDS Connect repository**
  - Upload artifacts from authoring tool to repository

- **Additional user-facing testing capabilities**
  - Storage of "expected" results
  - Improved views for reviewing test data
  - Global bank of synthetic test data

- **Additional terminology sources for value set / code searches**
  - Other FHIR-based terminology servers
  - Other non-FHIR terminology servers (e.g., Public Health Information Network Vocabulary Access and Distribution Systems
  - Direct entry of Value Set Universal Resource Indentifiers

- **CQL 1.2 error handling**
  - Use CQL-defined "Message" operator (instead of "Errors" expression)

- **Comments**
  - Support annotating expressions with user-provided comments

- **Additional CQL operators**
  - Support for math operators, timing operators, more…

- **Advanced query construction**
  - Finer control over "where" clause, "sort", and "return"

- **Import and reference external libraries**
  - Use constructs not supported in Authoring Tool (AT) by referencing external libraries

- **Direct CQL entry**
  - Use constructs not supported in AT by entering CQL code directly

- **Cross-artifact re-usable elements**
  - Save frequently used elements / expressions for use across artifacts

- **Additional CDS types**
  - Currently Event-Condition-Action rules returning recommendation text (to display)
  - Potentially return orders (e.g., MedicationOrder, DiagnosticOrder, ProcedureRequest, ReferralRequest, etc.)
  - Potentially align w/ CDS Hooks card responses (info, suggestions, links)

- **Revision control**
  - Track revisions of artifacts

CDS Authoring Tool – Potential FY2019 Features Recap

- CQL authoring for other versions of FHIR
- Integration w/ the CDS Connect repository
- Additional user-facing testing capabilities
- Comments
- Additional terminology sources for value set / code searches
- CQL 1.2 error handling
- Additional CQL operators (math, timing, etc.)
- Advanced query construction
- Import & reference external CQL libraries
- Direct CQL entry
- Cross-artifact re-usable elements
- Additional CDS types
- Revision control

Pilot Status

Pilot Activities

Reported Complete in May update:

✓ Designed Substitutable Medical Applications, Reusable Technologies (SMART) on FHIR app

✓ Evaluated data availability to determine if/where CDS expression could be enhanced

✓ Tested SMART on FHIR app internally

✓ Delivered SMART on FHIR app to pilot

✓ Selected clinical pilot site

✓ Identified Clinical Champions at each clinical location

Pilot Activities

Completed since May update:

✓ Testing SMART on FHIR app at OCHIN

✓ Finalized pilot site training materials

✓ Trained pilot site clinicians (6/14)

✓ "Go Live" at pilot site (6/20)

Next up:

✓ Weekly analytics and troubleshooting (if needed)

✓ Finalize pilot focus group questions

✓ Planning for pilot focus group